

WHAT IS CLAIMED IS:

1. A novel enhanced tubular means for inserting an intraocular lens through a small incision into an eye,
5 comprising, in combination:

a hollow tube means including an interior wall defining a hollow space through which an intraocular lens may be passed from the hollow space into an eye; and

a lubricity enhancing component covalently bonded to
10 the hollow tube at the interior wall in an amount effective to facilitate the passage of the intraocular lens through the hollow space, the lubricity enhancing component including at least one improved substituent component for reducing hydrolysis of said lubricity enhancing component
15 relative to an identical lubricity enhancing component without the at least one improved substituent component.

2. The means of claim 1 wherein said substituent component is other than hydroxy.

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3. The means of claim 1 wherein the substituent component is selected from the class consisting of hydrocarbyl groups, substituted hydrocarbyl groups and mixtures thereof.

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4. The means of claim 3 wherein the substituent component has 1 to about 4 carbon atoms per group.

5 5. The means of claim 1 wherein the substituent component is selected from the class consisting of alkoxy groups having 1 to about 4 carbon atoms and mixtures thereof.

 6. The means of claim 1 wherein the substituent component includes one or more methoxy groups.

10 7. The means of claim 1 wherein the substituent component is effective to reduce hydrolysis of said lubricity enhancing component relative to an identical lubricity enhancing component including one or more hydroxy groups in place of the substituent component.

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 8. The means of claim 1 wherein said lubricity enhancing component is hydrophilic.

20 9. The means of claim 1 wherein said lubricity enhancing component is derived from a precursor component including the substituent component, an alkylene oxide component and an additional substituent component effective to covalently bond with at least one of the precursor component and the hollow tube.

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10. The means of claim 9 wherein said additional substituent component is an ethylenically unsaturated group.

5 11. The means of claim 9 wherein said alkylene oxide component is an ethylene oxide component.

12. The means of claim 9 wherein the additional substituent component is selected from the class consisting
10 of vinyl groups, acrylic groups, methacrylic groups and mixtures thereof.

13. The means of claim 9 wherein the precursor component is water soluble.

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14. The means of claim 9 wherein the precursor component is methoxy polyethylene glycol monomethacrylate.

15. The means of claim 1 wherein the lubricity
20 enhancing component is effective to reduce the force needed to pass the intraocular lens through the hollow space relative to the force needed to pass an identical intraocular lens through the hollow space of a similar apparatus without the lubricity enhancing component.

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16. The means of claim 1 which further comprises a loading portion coupled to the hollow tube and sized and

adapted to receive an intraocular lens for passage into the hollow space.

17. The means of claim 16 wherein the lubricity
5 enhancing component is covalently bonded to said loading portion in an amount effective to at least assist in facilitating the passage of said intraocular lens into said hollow space.

10 18. A method of making an intraocular lens inserter cartridge, comprising:

providing a hollow tube comprising a polymeric material, the tube including an interior wall defining a hollow space through which an intraocular lens may be
15 passed and an outlet through which the intraocular lens may be passed from the hollow space into an eye;

contacting the interior wall of the tube with a precursor material of a lubricity enhancing component to form a coating on the interior wall; and

20 causing the precursor material in the coating to form a lubricity enhancing component having covalent bonds with the polymeric material of the tube;

wherein the lubricity enhancing component includes at least one substituent group effective to reduce hydrolysis
25 of the lubricity enhancing component relative to an identical lubricity enhancing component without the at least one substituent group.

19. The method of claim 18, further comprising a step of exposing the interior wall to plasma for a sufficient amount of time to enhance the covalent bonding between the lubricity enhancing component and the polymeric material of
5 the tube.

20. The method of claim 18, wherein the polymeric material comprises polypropylene.

10 21. The method of claim 18, wherein the precursor material includes a UV radical initiator, and the step of causing comprises exposing the coating on the interior wall to ultraviolet light to covalently bond the coating on the interior surface of the tube.

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22. The method of claim 21, wherein the precursor material further includes a thermal radical initiator, and the step of causing further comprises exposing the covalently bonded coating to elevated temperature for a
20 time sufficient to enhance the stability of the covalently bonded coating.

23. The method of claim 18, wherein the lubricity enhancing component is effective to reduce the force needed
25 to pass the intraocular lens in a folded state through the hollow space relative to the force needed to pass an identical intraocular lens in a folded state through the

hollow space of an identical hollow tube without the lubricity enhancing agent.

24. The method of claim 18 wherein the at least one
5 substituent group is other than a hydroxy group.

25. The method of claim 24 wherein the at least one
substituent group is selected from the class consisting of
hydrocarbyl groups, substituted hydrocarbyl groups and
10 mixtures thereof.

26. The method of claim 25 wherein the at least one
substituent group has 1 to about 4 carbon atoms per group.

15 27. The method of claim 24 wherein the at least one
substituent group is selected from the class consisting of
alkoxy groups having 1 to about 4 carbon atoms and mixtures
thereof.

20 28. The method of claim 24 wherein the at least one
substituent group is one or more methoxy groups.

29. The method of claim 24 wherein the substituent
group is effective to reduce hydrolysis of said lubricity
25 enhancing component relative to an identical lubricity
enhancing component including one or more hydroxy groups in
place of the at least one substituent group.

30. The method of claim 24 wherein said lubricity enhancing component is hydrophilic.

5 31. A method for inserting an intraocular lens into an eye comprising:

 placing an outlet of a hollow tube in or in proximity to an incision in an eye, the hollow tube including an interior wall defining a hollow tube including an interior
10 wall defining a hollow space containing an intraocular lens in a folded state and an effective amount of a liquid component, and an effective amount of a lubricity enhancing component covalently bonded to the hollow tube at the interior wall, the lubricity enhancing component including
15 a substituent component effective to reduce hydrolysis of the lubricity enhancing component relative to an identical lubricity enhancing component without the substituent component; and

 passing the intraocular lens from the hollow space
20 through the outlet into the eye.